

Amendment to the Claims:

This listing of claims replaces all prior versions, and listings, of claims in the application:

1. (Currently Amended) A routing system comprising:
a switch configured to switch process network packets, including distinguishing between data packets and control packets in the network packets and sending a control packet to ~~associate virtual protocol information with the packets; and~~
a controller, separate from the switch, and operatively connected to the switch, and configured to receive the control-a ~~packet from the switch and deliver the control packet to a~~
network stack of the controller such that a networking ~~application of the controller views the control packet to use~~
~~said virtual protocol information to route the packet and to~~
~~remove said virtual protocol information, said packet being,~~
~~providing packet information in a same format that as if the~~
control packet came directly from a local interface, the local
interface being a virtual interface of the controller that
corresponds to a physical interface of the switch were located
~~in the controller.~~

2-3. (Cancelled)

4. (Original) The routing system of claim 1 wherein the switch has interfaces, each interface corresponding to a virtual interface in the controller.

5. (Previously Presented) The routing system of claim 4 wherein the switch includes a routing mechanism which sends packets to a corresponding virtual interface of the controller.

6. (Previously Presented) The routing system of claim 1 comprising multiple switches and wherein the controller is configured to control each of the multiple switches.

7. (Currently Amended) The routing system of claim 1 wherein the controller is operatively connected to the switch through a device communication medium comprising a high-speed switching fabric ~~further comprising a network medium between the switch and controller.~~

8. (Currently Amended) The routing system of claim 1-7 wherein the controller is operatively connected to the switch through a device communication ~~network~~ medium comprising Ethernet.

9. (Currently Amended) The routing system of claim 1 wherein the network packets comprise Internet Protocol packets ~~controller comprises a networking stack for receiving and processing the packet.~~

10. (Currently Amended) A routing system comprising:
a switch configured to ~~switch-process~~ network packets,
including distinguishing between data packets to be handled
locally and control packets to be forwarded, the switch
comprising multiple physical interfaces; and

a controller, separate from the switch, operatively
connected to the switch, and configured to receive the control
packets, the controller comprising one or more pseudo device
drivers providing multiple virtual interfaces corresponding
respectively to the multiple physical interfaces of the switch,
and the controller being configured to control the switch by
sending control information to the switch through an appropriate
virtual interface of the one or more pseudo device drivers ~~and~~
~~to associate virtual protocol information to the packets and~~
~~connected to transmit a packet through the switch using a~~
~~protocol that operates as if the switch were located in the~~
controller.

11. (Cancelled)

12. (Currently Amended) The routing system of claim 10 wherein the switch is arranged to strip the address information associated with the switch from the control information packet received from the controller.

13-14. (Cancelled)

15. (Original) The routing system of claim 10 comprising multiple switches and wherein the controller is configured to control the switches.

16. (Currently Amended) The routing system of claim 10 wherein the controller is operatively connected to the switch through a device communication medium comprising a high-speed switching fabric ~~switch and the controller communicate through a network medium.~~

17. (Currently Amended) The routing system of claim 10-16 wherein the controller is operatively connected to the switch through a device communication ~~network~~ medium comprisinges Ethernet.

18. (Currently Amended) The routing system of claim 10 wherein the controller comprises an Internet Protocol networking stack ~~for transmitting the packet.~~

19-30. (Cancelled)

31. (New) The routing system of claim 1, wherein the switch is further configured to add information to the control packets before sending the control packets to the controller, the information comprising a destination address of the controller and protocol information that causes the control packets to be processed at the controller through a virtual interface protocol module of the controller, and the controller comprises the virtual interface protocol module configured to remove at least a portion of the information added at the switch and to deliver the control packets to the network stack.

32. (New) The routing system of claim 10, wherein the controller is further configured to add information to the control information before sending the control information to the switch, the added information comprising a destination address of the switch and protocol information that causes the control information to be processed at the switch through a

virtual interface protocol module of the switch, and the switch comprises the virtual interface protocol module configured to remove at least a portion of the added information and to send the control information through a physical interface of the switch corresponding to the appropriate virtual interface of the one or more pseudo device drivers.

33. (New) A method comprising:

employing a pseudo device driver in a controller of a distributed Internet Protocol router to provide a single-router view of multiple Internet Protocol switches to a network application of the controller, the distributed Internet Protocol router comprising the Internet Protocol switches and the controller operatively connected through a device communication medium.

34. (New) The method of claim 33, further comprising:

distinguishing, in one of the Internet Protocol switches, between data packets and control packets received through a physical network interface of the one switch;

adding information to the control packets that causes the control packets to be processed in the controller such that the control packets appear to be received at the controller through

a virtual network interface of the controller that corresponds to the physical network interface of the one switch; and

sending the control packets having the added information to the controller.

35. (New) The method of claim 33, wherein employing the pseudo device driver comprises:

distinguishing, in the controller, among received control packets based upon information previously added to the control packets in the Internet Protocol switches; and

delivering the control packets to a module of the controller such that the control packets appear to be received at the controller through virtual network interfaces of the controller that correspond to physical network interfaces of the Internet Protocol switches.

36. (New) The method of claim 33, wherein employing the pseudo device driver comprises:

receiving, within the controller, a control packet from the network application through a virtual network interface of the pseudo device driver; and

adding information to the control packet that causes the control packet to be routed to a switch that includes a physical

network interface corresponding to the virtual network interface and that causes the control packet, after being received at the switch, to be sent through the physical network interface, the switch being one of the Internet Protocol switches; and

sending the control packet having the added information to the switch.

37. (New) The method of claim 33, wherein the device communication medium comprises a high-speed switching fabric.

38. (New) The method of claim 33, wherein the device communication medium comprises Ethernet.

39. (New) An article comprising a machine-readable medium embodying information indicative of instructions that when performed by one or more machines result in operations comprising:

employing a pseudo device driver in a controller of a distributed Internet Protocol router to provide a single-router view of multiple Internet Protocol switches to a network application of the controller, the distributed Internet Protocol router comprising the Internet Protocol switches and the

controller operatively connected through a device communication medium.

40. (New) The article of claim 39, wherein the operations further comprise:

distinguishing, in one of the Internet Protocol switches, between data packets and control packets received through a physical network interface of the one switch;

adding information to the control packets that causes the control packets to be processed in the controller such that the control packets appear to be received at the controller through a virtual network interface of the controller that corresponds to the physical network interface of the one switch; and

sending the control packets having the added information to the controller.

41. (New) The article of claim 39, wherein employing the pseudo device driver comprises:

distinguishing, in the controller, among received control packets based upon information previously added to the control packets in the Internet Protocol switches; and

delivering the control packets to a module of the controller such that the control packets appear to be received

at the controller through virtual network interfaces of the controller that correspond to physical network interfaces of the Internet Protocol switches.

42. (New) The article of claim 39, wherein employing the pseudo device driver comprises:

receiving, within the controller, a control packet from the network application through a virtual network interface of the pseudo device driver; and

adding information to the control packet that causes the control packet to be routed to a switch that includes a physical network interface corresponding to the virtual network interface and that causes the control packet, after being received at the switch, to be sent through the physical network interface, the switch being one of the Internet Protocol switches; and

sending the control packet having the added information to the switch.

43. (New) The article of claim 39, wherein the device communication medium comprises a high-speed switching fabric.

44. (New) The article of claim 39, wherein the device communication medium comprises Ethernet.